LIEBHERR

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
LIEBHERR LH80M 1218-157090
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (--- GAL)

RECOMMENDATION

No corrective action is recommended at this time.

WEAR

Metal levels are typical for a new component breaking in.

CONTAMINATION

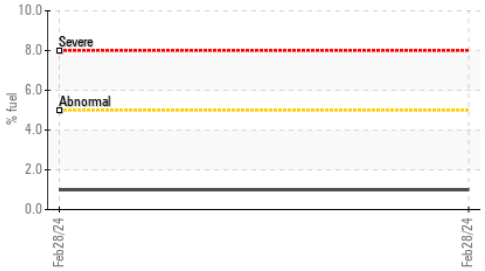
Fuel content negligible. There is no indication of any contamination in the oil.

FLUID CONDITION

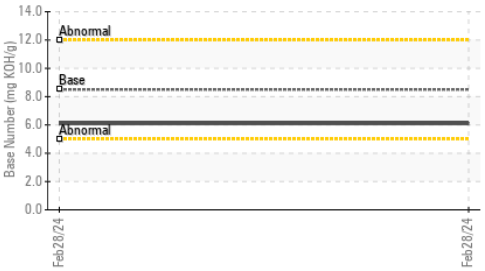
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0280580	---	---
Sample Date		Client Info		28 Feb 2024	---	---
Machine Age	hrs	Client Info		231	---	---
Oil Age	hrs	Client Info		0	---	---
Filter Age	hrs	Client Info		0	---	---
Oil Changed		Client Info		Not Changd	---	---
Filter Changed		Client Info		Not Changd	---	---
Sample Status				NORMAL	---	---
Iron	ppm	ASTM D5185m	>100	6	---	---
Chromium	ppm	ASTM D5185m	>5	<1	---	---
Nickel	ppm	ASTM D5185m	>5	0	---	---
Titanium	ppm	ASTM D5185m		0	---	---
Silver	ppm	ASTM D5185m	>3	0	---	---
Aluminum	ppm	ASTM D5185m	>15	2	---	---
Lead	ppm	ASTM D5185m	>30	2	---	---
Copper	ppm	ASTM D5185m	>125	32	---	---
Tin	ppm	ASTM D5185m	>5	<1	---	---
Vanadium	ppm	ASTM D5185m		0	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---
Silicon	ppm	ASTM D5185m	>60	8	---	---
Potassium	ppm	ASTM D5185m	>20	<1	---	---
Fuel	%	ASTM D3524	>5	1.0	---	---
Water		WC Method	>0.2	NEG	---	---
Glycol		WC Method		NEG	---	---
Soot %	%	*ASTM D7844	>3	0.1	---	---
Nitration	Abs/cm	*ASTM D7624	>20	10.3	---	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	38.7	---	---
Silt	scalar	*Visual	NONE	NONE	---	---
Debris	scalar	*Visual	NONE	NONE	---	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---	---
Appearance	scalar	*Visual	NORML	NORML	---	---
Odor	scalar	*Visual	NORML	NORML	---	---
Emulsified Water	scalar	*Visual	>0.2	NEG	---	---
Sodium	ppm	ASTM D5185m	>158	<1	---	---
Boron	ppm	ASTM D5185m	250	116	---	---
Barium	ppm	ASTM D5185m	10	22	---	---
Molybdenum	ppm	ASTM D5185m	100	50	---	---
Manganese	ppm	ASTM D5185m		<1	---	---
Magnesium	ppm	ASTM D5185m	450	948	---	---
Calcium	ppm	ASTM D5185m	3000	1433	---	---
Phosphorus	ppm	ASTM D5185m	1150	827	---	---
Zinc	ppm	ASTM D5185m	1350	941	---	---
Sulfur	ppm	ASTM D5185m	4250	2911	---	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	49.0	---	---
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	6.1	---	---
Visc @ 100°C	cSt	ASTM D445	14.4	12.1	---	---

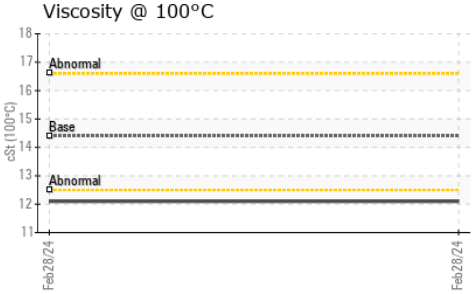
Fuel Dilution



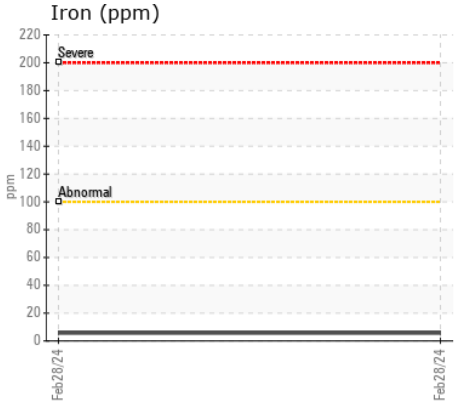
Base Number



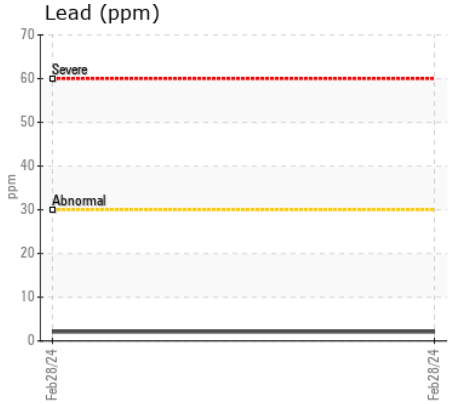
Viscosity @ 100°C



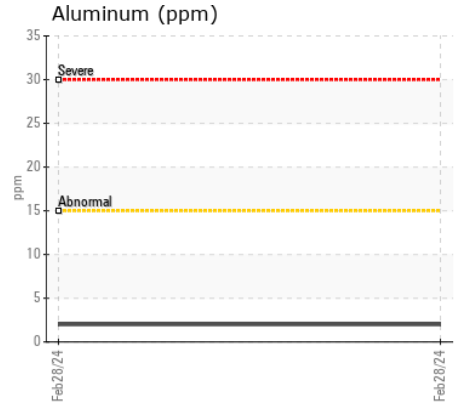
Iron (ppm)



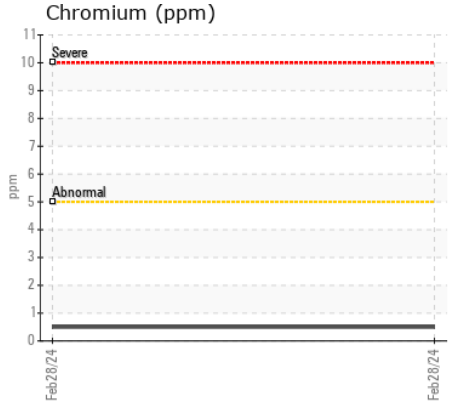
Lead (ppm)



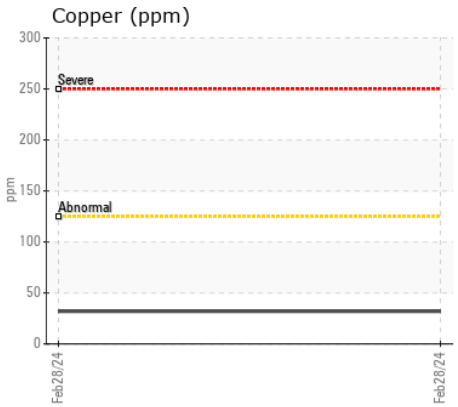
Aluminum (ppm)



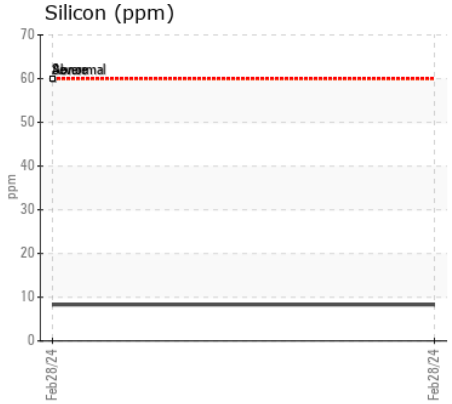
Chromium (ppm)



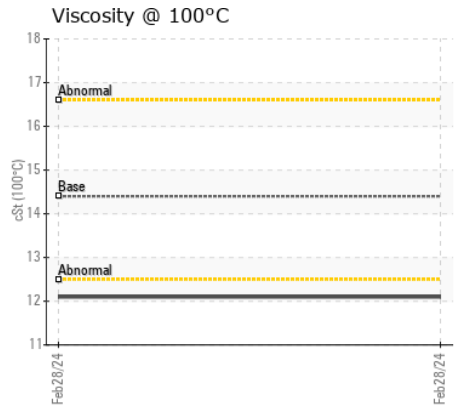
Copper (ppm)



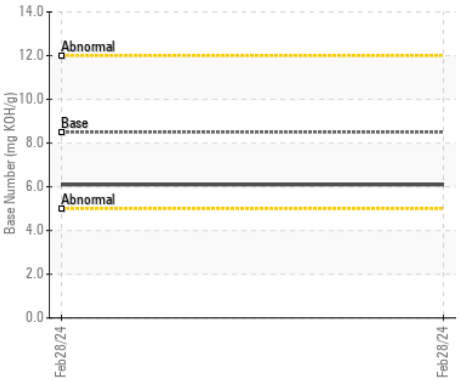
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LH0280580 **Received** : 19 Mar 2024
Lab Number : 06123043 **Tested** : 22 Mar 2024
Unique Number : 10937194 **Diagnosed** : 22 Mar 2024 - Sean Felton
Test Package : MOBCE (Additional Tests: FuelDilution, PercentFuel, TBN)

To discuss this sample report, contact Customer Service at 1-800-237-1369.
** - Denotes test methods that are outside of the ISO 17025 scope of accreditation.*
Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

KINDER MORGAN
4301 IVERSON
TRINITY, AL
US 35601
Contact: RICKY JOHNSON
ricky_johnson@kindermorgan.com
T:
F: (256)355-5250